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ABSTRACT

The attractiveness of some European education policies and the current push toward national standards of academic achievement have converged recently in proposals for national educational testing in the United States. This paper examines the origins and status of student examination policies in 12 countries of the European Community. A major feature of European systems has been their function in selection for universities. Although competitive examinations for the civil service and professions preceded university examinations, the latter have had more influence on the national examination systems, and consequently on student learning. In the European Community, most countries have a tradition of external examinations and these examinations are generally a feature of secondary education. While examinations cannot be isolated from their national contexts, they are usually (with the exception of Britain) mirrors of the public school system, and external examinations other than the public examination system do not exist. The United States has an existing commercial infrastructure for developing and marketing standardized tests that is not found in Europe, where teachers and government inspectors are essential parts of the examination structure. The place of any national examination in the United States requires considerable thought and evaluation of the existing infrastructure. An 186-item list of references and 7 tables of comparative information about examinations in the European Community are included. (SLD)

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STUDENT EXAMINATION SYSTEMS IN THE EUROPEAN COMMUNITY: LESSONS FOR THE UNITED STATES

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Preface

Since the middle of the 19th century, America's experiment with universal schooling has distinguished it from other school systems in the world. Yet despite its unique features, the US school system has often borrowed ideas from overseas. As early as the 1850's, for example, the Prussian system of classifying students and organizing schools in graded classes was looked upon as a model by some school reformers in New England.

Another recurring phenomenon in American education has been the attempt to define common standards of performance, a formidable challenge given the highly decentralized nature of school organization. Efforts to establish more uniform curricula and to gauge students' mastery are controversial -- especially when framed in "national" terms -- because of the high value placed on local decisionmaking in the schools.

These two issues -- the attractiveness of certain European education policies and the push toward national standards of achievement -- have converged recently in various proposals for national educational testing in the United States. Against the backdrop of growing concern for America's competitiveness in the international economy, proposals to reform aspects of our school system on the model of our European and Asian competitors command much public attention.

In response to requests from the House Committee on Education and Labor and the Senate Committee on Labor and Human Resources, OTA is conducting a comprehensive study of educational testing in the United States. OTA's report, to be completed in the Fall of 1991, addresses a wide range of questions surrounding the purposes, design, implementation, and effects of alternative educational tests. As part of that larger study, OTA contracted with Professors George Madaus (Boston College) and Thomas Kellaghan (St. Patrick's College, Dublin) to analyze the examination systems in the 12 nations of the European Economic Community and to consider implications for American schooling.

This part of the Madaus/Kellaghan paper provides a richly detailed description of the origins and current status of student examination policies in the EC countries. Because of the timeliness of the information about European testing, OTA has chosen to release this abridged version of the contractor report now. As indicated on the cover page of this document, the Madaus/Kelleghan paper has not been reviewed or approved by the Technology Assessment Board, and does not necessarily reflect the opinions or findings of OTA.

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THE ORIGINS AND DEVELOPMENT OF PUBLIC EXAMINATIONS IN EUROPE

The origins and development of examination systems during the 19th century in Europe are extremely complex. Three major features, however, can be detected in their development. One relates to their selective function, a second relates to the major part played by universities, and a third to the role of examinations in defining student learning--what it is students learn and how they learn. We will describe these features and then we will list some of the advantages and disadvantages that have been ascribed to public external examinations in Europe and elsewhere.

The Selective Function of Examinations

A major feature in the origins and development of public-examination systems was their selective function (see Christie & Forrest, 1981; Creswell, 1987; Goacher, 1984; Ingenkamp, 1977). This use in the university context is obvious enough. Students gained access to a university through passing the Baccalaureat in France, the Abitur in Germany, or the relevant university board examination in England.

However, the use of examinations for selection for the civil service and professions preceded their use for university entrance. A major reason for introducing examinations in Europe in the first place was to replace the old system of patronage and nepotism for making appointments to the civil service which had secured the dominance of the aristocracy. News had been coming through from China since the 16th century by way of missionaries and travellers about the system of examinations in that country which had used written examinations since 2200 B.C. to select personnel for government positions. The Jesuits incorporated examinations into their schools (see Du Bois, 1970; Durkheim, 1979; McGucken, 1932) and, at later date, it was hoped that the introduction of examinations for selection to the civil service would ensure that the most able and talented would be recruited.

Germany (Prussia) led the way with civil service examinations and, by 1748, recruitment to offices in the judiciary and government administrative services was based on examination performance (Amano, 1990).

Following the Revolution, France adopted the German practice of using selective examinations to identify highly trained professional elites in pursuit of a powerful absolutist state. The first use of such examinations was in 1793 when an official certificate in civic virtue was required of primary-school teachers in the ecoles centrales. In 1795, a scholarship entrance examination was established for such schools (Broadfoot, 1984). In time, examining in France,

though developed at a later date than in Germany, became more frequent, covered more subject areas, and was more selective, demanding higher standards and failing more students (Amano, 1990).

In Britain, professional bodies introduced written qualifying examinations early in the 19th century - the Society of Apothecaries in 1815 and Solicitors in 1835. At a later date, other non-university examining bodies, such as the City and Guilds of London Institute and the Society of Arts (later the Royal Society of Arts) organized examinations for commercial and technical studies. Competitive examinations for admission to the Civil Service were created under the Northcote-Trevelyan scheme in 1853 and, in the same year, a scheme was designed for selection for the East India Company's Civil Service. In these several spheres, examinations followed Benthamite principles of maximizing aptitude and minimizing expense, while at the same time controlling nepotism and patronage. By 1870, almost all civil service appointments were based on examinations while all but a few branches were open to public competition (Foden, 1989; Montgomery, 1965; Roach, 1971).

Under the influence of British practice the Civil Service Act of 1883 established competitive examinations in the United States to select personnel for government service. The examinations, however, were abandoned when Congress failed to make appropriations to continue them (Du Bois, 1970).

University Influence on Examinations

In Germany, the Abitur, first introduced in 1788 as a graduation examination for the classical middle school, soon became a qualification examination for university. Students who passed it were automatically admitted to university. The examination was used to upgrade the quality of the universities, rejecting students with poor scholastic ability (Amano, 1990).

The influence of the university can also be seen in France in the origin of the Baccalaureat, established by Napoleon in 1808, which has been traced to the 13th century determinance of the Sorbonne University (formalized by royal edict in 1598). The determinance consisted of an oral examination to decide whether students were fit to embark on the studies offered in the university (Halls, 1965). During the 19th century, higher educational institutions administered the Baccalaureat examination, which was used both to admit students to the grandes ecoles and to government service and other professions (Amano, 1990). Up to recently, the Baccalaureat granted access to a university; now for admission to the most prestigious schools further examinations have to be taken.

In Britain also, where mass public examining became a feature of education in the 19th century, the universities played an active role in the establishment of examinations. For example,

Oxford and Cambridge established systems of "locals" examinations, which were marked by university "boards", to assess secondary school quality, though it was not until 1858 that the examinations were used to examine individual students. It was later again (1877) that certification was provided to students. These examinations survived up to 1918. Other universities (Dublin, Durham) followed the same path and established procedures for examining local secondary school pupils (Lawton, 1980; Montgomery, 1965; Mortimore & Mortimore, 1984).

However, it was London, rather than the older universities (in which examining was mainly oral and in which the examination idea had never really taken strong root) that made the main contribution to the development of the external examination idea. Established as an examining body in 1836, London did not become a teaching institution until 1898. The first London matriculation examination was held in 1838, and was the earliest external school examination in Britain. The examination was conducted entirely by written papers (Kingdon & Stobart, 1988).

Although, as we have seen, competitive examinations for the civil service and for professions preceded their use in the context of university selection, the later development of examinations outside the university was strongly influenced by people who had experienced the use of internal examinations, both in secondary schools and in universities. James Booth, who was a member of the Society of Arts and is recognized as having played an important role in the development of examinations was one such person. Booth had studied at the University of Dublin where the system of examinations--both written and oral-- was more highly developed than at the other old British universities (which placed greater store on residence and meeting other requirements for graduation). The reason for the development of examinations at Dublin was at least partly because a fifth of its students were in effect 'external', attending only for examinations each term (Foden, 1989; McDowell & Webb, 1982). Booth noted and later promoted the complex procedures he had encountered in Dublin for use at secondary-school level, leading to the establishment of a system at the Society of Arts, which was accepted as an exemplar by other systems. In an 1853 Report of the Society, it was stated that decisive testimony had been obtained in favor of 'some system of examination for provincial schools in connection with a central body, which would be empowered to grant certificates of proficiency' (quoted in Foden, 1989, p. 75).

The universities continued to control the development of the secondary-school examination system during the second half of the 19th century in Britain. While recommendations were made, for example by the Taunton Commission in 1868 and the Bryce Commission in 1895, that a central body be created which would have overall responsibility for examinations, little was done to implement them. Although the Board of Education (set up in 1899) might have seemed the appropriate body to co-ordinate, if not administer, the examination system, opposition to central

control among teachers and local education authorities was widespread. Besides, the Board did not seem keen itself to assume direct control, preferring to exercise an indirect influence. Thus, no attempt was made to wrest the initiative from the universities, which were viewed favorably by the opponents of centralization (particularly, the local authorities) (Mortimore & Mortimore,1984).

The Influence of Examination on Student Learning

The third feature of examinations--their role in defining student learning--was in evidence from the earliest days of the French Baccalaureat. Originally, the 'program' for the examination consisted of a catalog of 500 questions from which a number of questions were randomly selected for the examination (Prost, 1968). This approach was compatible with the catechetical method of teaching, which had been popular in Europe for several centuries.

Throughout the 19th century, examinations were often developed without any institutional provision for preparing for them. Into the present century, many students prepared for university examinations, not in the university, but in other private educational institutions or in their own homes. Given this situation, it is not surprising that examinations exerted a major influence on what it was students learned. The influence continued even when formal curricula and teaching facilities were provided.

Foreshadowing contemporary claims in America of strong links between national examinations, school achievement, and increased global competitiveness, the argument was introduced from Professor Liebig of Giessen in Germany (at that time Britain's major industrial competitor and perceived to be ahead of Britain) that, "if no examination is introduced the best schemes will fail, and will produce no effect: introduce the examination, and all the rest follows of itself" (quoted in Foden, 1989, p.74). Liebig's view from Germany echoed the British view at the time that students and teachers needed to be motivated, that competition would improve motivation and learning, and that examinations were a necessary and cost-effective means of raising educational standards and securing national competitiveness.

Throughout the second half of the 19th century, examinations flourished in Britain. The growth has been attributed to the ethos of the time which was dominated by the utilitarian values and ideas of Adam Smith and Jeremy Bentham. First, there was the conviction that self-interest was the main motive for study and that since study involved drudgery, it was necessary to reward successful work by distinction in the ways of certificates, prizes, and medals. Second, teaching was also regarded as painful drudgery. Hence, teachers needed to be motivated by pupil success or additional payment (e.g., in payment-by-results schemes). Third, it was believed that the products of learning could be measured with some exactness. This led to an emphasis on the reproduction of factual knowledge, which formed the essence of written examinations. Fourth, the

state was recognized to have only limited obligations to secure the education of its citizens. When examination systems took off in the middle of the century, there was still no state-funded provision for secondary or technical education in Britain. Fifth, examinations in the educational sphere seemed to meet the important objectives of the Benthamites in industry of uniformity and standardization. Finally, examinations came to be seen as a cheap and effective method of promoting development by demonstrating the value of improved teaching and resources, thus creating incentives to local agencies to raise funds and support education and focusing attention on the need to provide more relevant curricula in schools (Foden, 1989).

As Foden (1989) has pointed out, the principles regarding method, motivation, and the effect of examinations which were embodied in the examination movement of the 19th century were almost wholly untested and unvalidated. At the time, there was little substantial critique of examinations as a technique or process and there was no serious questioning of the utilitarian values of the examination reformers. Booth, however, seems to have anticipated some of the later challenges to examinations when in 1853, he wrote

Objections are sometimes made to examinations, that they cannot always be depended on as true tests of proficiency--that they gave rise to cramming, and to superficial preparation. Now there is no system or plan that was ever devised that does not stand in the shade of some one or other objection. This, however, is no argument against examination as a test; it only proves that the examiner is incompetent to discharge his duties. To be a good examiner requires previous training. A well-trained examiner who knows the subject in hand, will not only gauge the knowledge but will take true note of the faculties of those who come before him. While he who confines himself to what is set down in text-books, who makes no step in deduction, who inquires into mere facts, and not into the bearing of those facts, who does not seek to look at a truth from different points of view, mistakes the duties of his office, and leaves undeveloped the powers of the instrument in his hands. An examination should not consist of strings of leading questions, nor of interrogatories to be answered by a simple yes or no. Neither should the answer be the echo of the question, nor should familiarity with mere tabulated results be sought for. An examination should be something more than the exponent of the strength of a mechanical memory. Examinations of this kind, if they do some good, do more harm. They encourage those principles of association, which rest on verbal similitude (cited in Foden, 1989, p. 78).

Booth's description of good examiners and his belief that we can build examinations which can measure what are called today higher-order thinking skills portend many of today's arguments that we need more "authentic tests". As Booth's description of good examining indicates, however, building such tests will not be easy and will be more rather than less costly and less rather than more efficient. Nor will training teachers to teach higher-order skills be easy or cheap.

Advantages and Disadvantages of External Examinations

Given the importance of external examinations for students' future careers, it is not surprising that they have attracted many apologists and critics. Among the advantages attributed to public examinations is that they are a relatively objective and impartial means of distributing educational benefits. Indeed, as we have seen, one of the reasons for their introduction in the first place was to reduce the effects of patronage and to open higher education and a range of occupations (particularly in the public service) to a wider population of students. Other advantages attributed to public examinations include the degree of national homogeneity in educational standards and practice which they engender, the sense of purpose they give to teachers' efforts, the provision of tangible incentives for students, a diminution of conflict between the roles of teaching and assessment, the provision of an assessment procedure unaffected by personal relationships between teachers and students, their acceptance in the community, and the creation of some measure of social consent among the young, while meeting some definition of comprehensiveness, equal access, and common entitlement or shared experience (Bowler, 1983; Commission on Mathematics, 1959; Consultative Committee on Secondary Education, 1938; Curriculum and Examinations Board, 1985; Hargreaves, 1988; Heyneman, 1987; Hotyat, 1958; Madaus & Macnamara, 1970; Morris, 1969).

At about the time that James Booth was writing in the middle of the last century, criticisms of public examinations and of their effects were also beginning to appear. Since then, there has been an avalanche of observations and analyses, in Europe and elsewhere, which have catalogued the shortcomings of public-examination systems. A major criticism of such examinations is that they can have undesirable "back-wash" effects on classwork, not just in examination classes but in lower grades as well, by limiting approaches to learning. They tend to encourage undue attention to material that is covered in the examinations and, since what is examinable is limited, worthwhile educational objectives and experiences may be excluded from the classroom. In effect, the examinations may come to determine the shape of the curriculum rather than the curriculum determining the shape of the examinations and examination performance comes to be regarded by parents and students as the main, if not the sole, objective of education.

Further criticisms made of external examinations are that they are usually carried out under artificial conditions in a very limited time frame and that they are not suitable for all students and can be extremely stressful for some, causing undue strain and excessive anxiety. They are often viewed by students as unfair since doing poorly, for whatever reason, on an examination at the end of the year can over-ride a year or more of hard work and achievement. They tend to inhibit the development of curricular variety which may be necessary to serve local and student needs. Further, there is often a lack of congruence between course objectives and examination procedures

(e.g., there may be no examinations for oral or practical objectives); and, given certain kinds of teaching, it would appear that students can do well in examinations without recourse to higher levels of cognitive activity; preparation for examinations often over-emphasizes rote memorization by students and drill and practice as teaching methods. There is plenty of evidence that examinations lead to cramming.

Particular criticisms apply to essay-type examinations. Such examinations are inevitably limited in the range of characteristics which they can assess, relying heavily on verbal and logico-mathematical areas. Procedures to reduce unreliability and inconsistency in marking are time-consuming and expensive.

Finally, public examination results are often used to serve a variety of purposes for which they may not have been designed; they may be used to predict future educational and vocational performance as well as to certify the completion of a course of education, though little effort is made to match occupational or educational needs with candidates' talents (Goacher, 1984). In particular, the use of examinations for the dual purpose of certifying the completion of a secondary education and for university admission tilts the examinations towards an academic university domination. Further, examination results may be used by universities and businesses principally to control numbers and to screen out excess applicants with the cut-off score being a function of the ratio of applicants to places. Examinations can also force students out of school before taking the examination or after failing it, or they can result in teachers excluding students who, if they sat the examination, would probably perform poorly (Amano, 1990; Bell & Grant, 1974; Bloom, 1961; Bowler, 1983; Broadfoot, 1984; Calder, 1990; Cannell, 1989; Consultative Committee on Secondary Education, 1938; Cuban, 1986; Cummings, 1980; Cunningham, 1989; Curriculum and Examinations Board, 1985; Eisemon, Patel & Abagi, 1987; Fallows, 1987; Gayen et all, 1961; Goacher, 1984; Gordon & Lawton, 1978; Haertel, 1989; Haladyna, Nolen & Hass, 1989; Holmes, 1911; Holt, 1969; Kamii, in press; Kellaghan & Greaney, in press; Kelly, 1989; Kreitzer, Haney & Madaus, 1989; Little, 1982; Madaus & Greaney, 1985; MDC, 1988; Mehrens & Kaminski, 1988; Meisels, 1989; Morris, 1969; Mukerji, 1966; Murphy, 1989; National Commission on Testing and Public Policy, 1990; Srinivasan, 1971; Rafferty, 1985; Raven, 1977; Reynolds, 1988; Rosenholtz, 1987; Shephard, 1989; Shephard & Smith, 1986; Smith & Shephard, 1988; Spaulding, 1938; Stake, McTaggart & Munski, 1985; Stodolsky, 1988; Turner, 1984; Tyler, 1963; Wheelock & Dorman, 1989; White, 1888).

The extensive literature on external examinations should serve to underline the need for serious discussion and weighing of the long and short-term cost benefits associated with the known positive and negative aspects of high-stakes testing before embarking on a national testing program.

THE STRUCTURE OF THE EDUCATIONAL SYSTEMS OF THE EUROPEAN COMMUNITY

The twelve members of the European Community are Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom. Our description of education and examination systems refer to the former Federal Republic of Germany and, in the case of the United Kingdom, to England and Wales.* Table 2 provides information that allows comparisons between total populations and school populations in European countries and in the United States. In the last column, American states which are equivalent in population to European countries have been identified.

The structures of an educational system and the curricula which students follow are particularly important in the context of considering examinations, since examinations are usually geared to specific curricula. Educational systems in Europe are characterized by the conventional division between primary, secondary (usually divided into lower and upper levels), and third-level education. The primary sector is relatively uncomplicated, offering a free, compulsory, and common education to all students. There have been in the past, and continue to be, differences between countries and even between states in the same country (Germany) in the length of primary schooling. The shortest primary cycle is four years (in Germany and Portugal) while the longest is seven years (in Denmark).

Second-level education has been characterized in the past by its bipartite nature (in some countries, there has been more than two parts), its selective mechanisms, and relatively low participation rates. In one type of school, a classical academic curriculum in the tradition of the seven liberal arts (Trivium and Quadrivium) was offered. In this school type (called grammar, gymnasium, or lycee) students were prepared for third-level education and white-collar occupations. As numbers expanded, the traditional academic curriculum got watered down, subjects were presented at different levels, and practical/commercial-type subjects were introduced for some students. The type of education now offered in such schools includes university-preparation curricula but in some countries, particularly at the lower level; it also includes more

* Information on educational and examination systems was obtained from European Communities Commission (1987), Feneville (1987), France--Ministere de l'Education Nationale (1990a, 1990b), Great Britain--Department of Education and Science (1989), Holmes (1983), Husen and Plstlethwaite (1985), OECD (1982, 1985, 1986, 1990), Solberg and Meijering (1979), Witte (1986), Xochellis and Terzis (1986) as well as in personal communications from Vasca Alves, Angela Barone, Patricia Broadfoot, Mrs. Fraincoise Connolly, Mike Creswell, Peter Hoeber, Romain Hulpia, E. Leclerq, Javier Valbuena, Leila vang Andersen, Monique Vervoort, Ernest Weis.

comprehensive programs designed for students who are not likely to go to university. In some national descriptions, the term 'general education' is used to describe the activities of these schools.

As an alternative to more academic general education, schools offering technical curricula were established to prepare students for skilled manual occupations. In some countries, curricula were expanded in these schools, as in the case of secondary grammar schools, to accommodate the increasing numbers of students attending. By contrast with grammar schools, however, the schools provided practical, usually short-term, "continuation" education.

After the second world war, and particularly during the 1960s, demographic, social, ideological, and economic pressures led to various reviews of educational provision. The division of students at an early age was regarded as inappropriate and curricula were seen to be in need of reform. Since increasing numbers of students were staying at school to receive some secondary education, the idea of developing a system of comprehensive education at the secondary level was considered in most countries. As participation rates grew and students remained at school beyond the lower level of secondary education, the classical academic curriculum of the upper level of secondary schools also came under pressure at the upper level, being regarded by many as inappropriate for a student body that was becoming increasingly more heterogeneous in achievement, aptitude, interest, and motivation.

Although all countries have made some moves to comprehensive lower-secondary education (up to age 15 or 16), achievements have been varied (see Wake, Marbeau & Peterson, 1979; European Communities Commission, 1987) (see Table 3). Several countries have established lower-secondary school curricula which are largely comprehensive. Denmark and Britain have gone furthest in this with ten years of comprehensive education, though there are still remnants of the bipartite system in Britain. Greece, Portugal, and Spain, which have had major reforms of education in recent years, and Italy and France have also relatively long periods of comprehensive education. The remaining countries, with the exception of Germany, can be regarded as aspiring towards, and to some extent in transition towards a more comprehensive system. However, there still exist systems which have academic-type schools, less demanding schools providing general education, and vocational/technical schools.*

There are some comprehensive schools in Germany but, on the whole, the German states have resisted the development of a thorough-going comprehensive system. Both major components of the traditional structure (the classical gymnasium and the vocational school) have been sufficiently strong and successful to resist possible incursions from each other. In particular,

* In this stage of transition, one cannot always be clear from the type of school what curricula actually are offered. For example, in Ireland, which has traditional grammar schools, vocational schools, and comprehensive schools, there is no restriction on what courses the school may offer.

vocational education, often seen by students as more enticing than the gymnasium-Abitur-university route, has been consolidated and improved and is generally regarded as a success of educational policy (Hearnden, 1986).

At the lower-secondary level, Germany retains four types of school: the Realschule or intermediate school (grades 5 to 10), which is the most popular and offers a technical education, the Hauptschule (grades 5 to 9), which is the least demanding, the Gymnasium (grades 5 to 13) which offers a classical academic curriculum leading to university, and the Gesamtschule or comprehensive school (grades 5 to 9/10 or 13). The situation is even more differentiated than this categorization implies as there are several types of gymnasium (classical, modern languages, scientific, economics, agriculture). The first two grades in all types of schools are conducted in accordance with comprehensive principles and are dedicated to the orientation, observation, and guidance of students. This differentiation can clearly be seen in the scope of the curriculum and how often it is revised. Since 1949 more than seven thousand separate syllabuses have been issued for general education alone. With the addition of six more states with re-unification there will be around two thousand different syllabuses in general education and at least twice that number in special and compulsory vocational education. No syllabus is valid in more than one state; no syllabus covers more than one subject; at the secondary level there are twenty different subjects; no syllabus covers more than one of the different school types or levels (Hopmann, 1991).

At the upper-secondary level, all systems offer differentiated schools and/or curricula. In the case of Italy, the system at this level is so complicated that it has been described by Visalberghi (1985) as a 'jungle'. The system is also highly differentiated in Germany. In addition to the types of schools described above, there is a complex and changing vocational sector, in which there are several types of schools (e.g., commerce, child care, continuation, and part-time).

Table 4 provides data on the percentages of upper-secondary school students (by gender) following general education and technical/vocational curricula in countries in the European Community. In eight of the countries, a majority of students follow a curriculum of general education. However, in most countries, a sizeable number of students are enrolled in technical/vocational education courses.

In all systems, with the exception of the United Kingdom (in which the situation is changing), curricula are prescribed for schools by a central authority, usually the Ministry of Education (MOE). The definition of this prescription varies from system to system. In Germany, it is determined by each of the eleven states. In Britain, up to the present, it has, in effect, been determined at secondary level by the independent examination boards, whose syllabuses a school has chosen to adopt. In some countries (e.g., France), curricula seem to be fairly uniform across

schools. In others, particularly Denmark, since great discretion regarding implementation is left to individual schools, we might expect considerable variation between schools. The trend in several countries is to allow schools a great deal of freedom in the definition of curricula during the compulsory period of schooling.

It is clear from the description which we have presented that the structures of educational systems in Europe vary considerably. There are many other ways in which the systems differ which might have implications for the nature of examinations and for student achievement which we cannot consider here in detail. For example, there are differences in enrollment rates at various ages between countries (Table 5). While these rates in all countries are high at age 15, considerable decreases occur in some countries at ages 16 and 17. The largest decrease between ages 15 and 16 is to be found in the United Kingdom in which the participation rate drops from 99.7% to 69.3 percent. By contrast, participation in the United States at age 16 is 94.6 percent.

EXAMINATION SYSTEMS IN EUROPE TODAY

Before describing examination systems in Europe, which we will find reflect the complexity of the educational systems in which they function, two general points may be made. First, most countries have had a tradition of external examinations. And second, examination systems in all countries have been evolving as the broader social and educational contexts in which they operate have been changing. This has led in some countries to the virtual abandonment of external examinations. Following our categorization of examination systems, we will briefly consider two further issues: the idea of a single examination for all and the cost of examinations.

Tradition of External Examinations

All countries today have some elements of an external-examination system, though for some it is only at the point of entry to third-level education. At its most general, this means that all have at some point or points in their education system more or less formalized procedures, usually separated from the classroom situation, in which a candidate has to answer questions, usually based on externally devised syllabuses, to demonstrate that he/she possesses certain knowledge and skills. Examinations most usually involve written essay-type questions, though in some countries oral examining also features. In some countries (Britain, Netherlands, Portugal, Spain) multiple-choice sections have been introduced to examinations.

On the basis of examination performance, a candidate is usually awarded a certificate or diploma which will contain information on the candidate's performance on each subject in the

examination in terms of either letter grades (e.g., A, B, C, D, E), numbers (e.g., 1, 2, 3, 4, 5), or marks. Usually, grades are arrived at by simply summing marks allocated to sections of questions and across questions and papers (if an examination in a subject has more than one paper) (see Bolger & Kellaghan, 1990). The final allocation of grades may also involve some element of norm-referencing in which grade distributions in previous years are taken into account. Marks or grades (converted to points) may be summed across subjects to make decisions about university entry. European countries do little to apply to their examinations psychometric principles of the type developed in the context of testing in the United States. The two major issues of interest are objectivity and comparability. Psychometric issues such as pretesting, item-analysis, IRT, scanning, equating, reliability, and construct validity receive little or no attention. Nor does an extensive technical psychometric community/elite exist in Europe as it does in the United States.

The certificate or diploma, in addition to testifying to the candidate's satisfactory performance in an examination in a particular subject or groups of subjects, may also confer certain rights, such as the right to be considered for (if not actually admitted) to some sector of the social, professional, or educational world. Certificates are 'credentials', analogous to stock shares or academic currency (Solberg, 1979). Thus, certification has both educational functions (testifying to and 'guaranteeing' students' standard of education) and legitimizing functions at both the level of knowledge (indicating the legitimacy of a new subject such as computer science) and of the individual (justifying the classification of individuals into social categories and the allocation of educational benefits to certain individuals).

A further feature of educational systems in Europe, which is reflected in examinations, is that syllabuses have traditionally focussed on content. At one stage, the study of classical texts was the main feature of syllabuses (Lundgren, 1986). There have been movements in several countries in curriculum development, largely under the influence of American research, to focus on "objectives", while content has broadened considerably beyond the classics (Hameyer, Frey, Haft & Kuebart, 1986). In the syllabuses for the new General Certificate of Secondary Education taken in Britain at 16+, an effort has been made to place greater emphasis on skills (Kingdon & Stobart, 1988). In the technical and trade areas also, examinations may focus on practical skills. However, syllabuses in European countries still reflect a major concern with subject-matter content and examinations are organized in terms of traditional subject areas (languages, mathematics, sciences, history, geography, etc.). Within a subject area, syllabuses may be offered at different levels. In some countries, syllabuses for the same subject differ in different parts of the country or depending on the examination board offering the syllabus.

Finally, the tradition of examinations in Europe has been to make public the content of examinations and their results. This was so even before examinations were presented to candidates

in printed form. For example, after the oral examination of candidates at Dublin University during the first part of the last century, people who had been present wrote up and circulated the questions that had been asked. These questions were then used by students who were preparing for similar examinations in the future, in effect establishing the tradition of allowing examinations to determine curricula. This became easier of course when examinations in printed form became available (McDowell & Webb, 1982). Broadfoot (1984) has noted about the present French Baccalaureat that once examination papers are published, every teacher studies them or makes their pupils try them so that the examination questions virtually become the syllabus. Indeed, in France, examinations often make front-page news in newspapers; scholars analyze questions and the cultural implications of examiners' choice of topics (Eckstein & Noah, 1989). In Germany, in addition to making examination papers available, answer scripts are returned to students who may question the way they were graded with their teachers. If a problem cannot be resolved between student and teacher, the matter is referred to an official of the Ministry of Education.

Changes in Examination Systems

It would be misleading to think of examination systems in Europe as stable or unproblematic. Systems have always been subject to revision. However, the changes over the past three decades have been quite radical in several countries. Some countries have moved in a particular direction, only to retreat at a later date. In the mid-1970s, for example, France abolished external examinations at 16+ with the aims of postponing selection, making assessment more comprehensive, and giving a greater role to teachers in assessing students (Broadfoot, 1987b). However, the examinations were re-instituted in the 1980s, at least partly because the resources to support a school-based system of assessment had not been made available to schools. In Germany, decisions have recently been taken to attempt to restore some of the older standards which people believe have been lost by allowing candidates freedom to select subjects at lower levels of difficulty in the Abitur (Noah & Eckstein, 1990). We can expect further change as social and educational conditions alter and as those responsible for examinations respond to criticisms of systems.

A major force for change in examinations in all countries came from expanding participation rates in education which were accompanied by an increase in variance in the achievements, aptitudes, interests, and needs of students, which in turn necessitated a change in traditional curricula. This situation led many people to the view that the formal and academic nature of traditional examinations (particularly written terminal ones), originally designed for a minority of students, was unsuitable for the assessment of many candidates and curricular areas. Criticisms of external examinations, which have been consistently made during their history,

particularly ones about their narrowing effects on students' educational experiences, achieved a new level of significance and relevance when the question of submitting total populations to traditional examination procedures arose. While many commentators judged such procedures to be particularly unsuitable in the case of low-achieving students, perhaps the more striking evidence comes from students themselves who opt not to take examinations and leave school without any formal certification. In two countries with very formal external examination systems, Britain and Ireland, the number of such students (about 11% and 8% respectively) has been a matter of serious concern to policy-makers.

There have been three major approaches to changes in examination and certification systems in recent years. One has been to abolish external examinations and certification completely. The second has been to make greater use of school-based assessment for certification purposes. The third has been to shift the purpose of examinations from selection to certification and guidance.

Most European countries at some time in the past held a national school-certificate examination at the end of primary schooling. Although during their life criticisms of these examinations were continually made, it was felt that the examinations had certain advantages, in particular that they helped to clarify for teachers the standards that were expected, they provided a stimulus to pupils, and were useful for selection to secondary education and in seeking employment (see, for example, Ireland: Department of Education, 1954). However, in time, arguments (particularly from teachers) about the limiting effects of the examinations on the curriculum, the fact that schools prevented low-achieving students from presenting themselves for examinations by grade retention (Madaus & Greaney, 1985), changes in philosophy of education, the raising of the school-leaving age, and the provision of adequate space in secondary schools to accommodate all students led to abolition of the examinations. Of these reasons, removal of the need to select pupils for secondary education was perhaps the most compelling. No country in the European Community today operates a national external examination at the end of primary schooling. The remnants of the certificate examination exist in Italy, where school-based examinations (set, administered, and scored by pupils' own teachers) are held throughout the country and in Belgium where some schools administer an examination at the end of primary schooling. (It seems that these schools feel an examination will help to raise standards.)

While there has been a move towards greater reliance on teacher assessments at the secondary level, examinations and certification have been retained in one form or another at two points in the system in most countries: at the end of lower-secondary and at the end of upper-secondary schooling. External examinations have been abolished and certification is entirely school-based at both levels in four countries (Belgium, Greece, Portugal, Spain). Examinations in

all the other countries have some input from teachers. This takes the form either of candidates' own teachers marking examinations which have been set by an outside body, or candidates' teachers contributing assessments which are combined with the results of external examinations. While Britain from the 1960s onwards moved towards a greater dependence on candidates' teachers in the assessment procedure, this position has been reversed in recent years, during which time central government has adopted a more active role in the control of both curriculum and examinations.

A third trend in European examination systems is the shift in emphasis from selection to certification and guidance about future academic study (see, e.g., Broadfoot, 1987b). A shift in function has been possible, especially at lower educational levels, because of the expansion of places in secondary schools. Furthermore, as the numbers taking final school-leaving examinations have increased and as the examinations have become more varied, selection for traditional third-level education is no longer a concern for many students taking terminal school examinations. Increasing numbers of these are now turning to apprenticeships or technical training (Eckstein & Noah, 1989). A further possible consequence of increasing numbers and diversification of school-leaving examinations, as well as of basing school certification wholly on school-based assessment, has been the introduction of state-controlled examinations for selection to third-level education.

The selective element is evident in other aspects of examinations and indeed, despite commitment to guidance, most systems retain strong traces of their origins as instruments of selection (Eckstein & Noah, 1989). In Denmark, for example, a student has to achieve a certain average score (5.5) in the school-based assessment at the end of the comprehensive Folkeskule at grade 10 to enter a gymnasium. In Germany, the School Leaving Certificate from the Hauptschule at grade 9 qualifies for entrance to an apprenticeship or vocational school or transfer to a Realschule. Students who leave without this certificate are awarded a non-qualifying certificate which destines them for unskilled occupations. While at the end of secondary schooling, the increase in numbers means that many students completing school are not likely to go to university and so will be interested in certification rather than in selection to a third-level institution, for those students with aspirations towards higher education, the competition in many countries (and consequently the importance of examinations for selection) has increased considerably in recent years.

A Categorization of the Systems

As we have noted, formal external examinations have disappeared at the primary-school level in all European countries. Around the end of lower-secondary education, which more or less

coincides in most countries with the upper compulsory attendance age, the situation is more complex (Table 6). In six countries (Belgium, Greece, Italy, Luxembourg, Portugal, and Spain), a school-leaving certificate is awarded to students on the basis of school-based assessment (which may involve continuous assessment and/or examinations or simply testify to completion of studies). In the other six countries, examining involves a combination of internal and external procedures. The countries can be placed on a continuum in terms of these practices from ones in which the external component of assessment is relatively small to ones in which it adopts a major role. In Germany (where there is a variety of certificates at grades 9 and 10, depending on the type of school which the student attends), examinations are set by an external agency (the MOE) but are scored by teachers in the candidates' own school. The external examination results are also supplemented by school-based assessments. In Denmark, examinations are also set by an external agency (MOE) and in addition to being scored by teachers in the candidates' own school are also scored by external teachers. In the Netherlands, the Ministry of Education sets an examination which has essay and multiple-choice components. Essay parts are marked with the aid of a marking scheme supplied to schools by students' own teachers and by teachers from another school. However, the multiple-choice component (which represents about half the written papers) is scored centrally. Oral examinations are administered by candidates' teachers. In France, examinations are set and marked by 23 regional academies, each of which produces its own examinations, based on the national curriculum. The examinations cover the subjects French, mathematics, and history/geography. For other subjects, school-based assessments are employed.

The last two countries (Ireland and the United Kingdom) show the highest level of external control in the examination system. In Ireland, the administering authority is the MOE, in the United Kingdom, five regional examining groups are responsible for the administration of the examinations. In both countries, the examinations are scored by teachers appointed by the examination authority, who will be unaware of the identity of candidates. While there is provision in both countries, greater in the United Kingdom than in Ireland, for including the results of school-based assessment in the final examination results, the role of the candidates' own teachers is less important than in other European countries at this level.

Diversity between countries, reflecting the position at the end of lower-secondary education, is also to be found at the end of secondary schooling (Table 6). Five models are required to take account of the differences that exist between countries at the upper-secondary level. Four, as against the six countries at lower-secondary level, operate a system of certification based solely on school assessment. The four countries (Belgium, Greece, Portugal, and Spain) which fit this model at the upper-secondary level also used school-based assessment at the lower-secondary level. In the second model, the examinations are largely school-based but have an

element of external control or monitoring. In Denmark and Luxembourg, the examinations are set by the MOE, but are marked by the candidates' own teachers as well as by teachers appointed by the Ministry. In Germany, the examinations are set by the MOE in each of the country's eleven states, but are marked by the candidates' own teachers. The results are sent to the MOE which identifies ones that it regards as untypical which are then discussed with the school. In the third model, which applies only in the Netherlands, the system is the same as at the lower-secondary model for that country: part of the examination is school-based and part set by the Ministry. The latter part is scored by candidates' own teachers as well as by external teachers. In the fourth model, which operates in Italy, examinations are set by the MOE and are scored by local examination committees which include teachers from candidates' own schools. In the final model, which operates in France, Ireland, and the United Kingdom, examinations are set and scored by an outside agency--the MOE in the case of Ireland and academies and examination boards in the case of France and the United Kingdom respectively. In Ireland and the United Kingdom, there is some provision for including an element of school-based assessment.

In a number of countries, examinations beyond the school-leaving certificate examination are employed to select students for third-level education. This happens in three countries that operate a completely school-based system of assessment and certification at the secondary level (Greece, Portugal, Spain). The examinations are run by the MOE. It will be noted that these three countries have relatively low participation rates at ages 16 and 17 (Table 5) and are among the economically poorest in the European Community. In other countries, individual universities (or schools within universities) may operate their own selection system, sometimes involving testing but using other criteria as well (e.g., school record, work experience), to decide on who they will accept for a limited number of places.

One Examination for All?

A persistent theme in the American proposals is the idea that there should be one "national" examination for all students of a particular age or grade level (recommendations about the precise age or grade level vary). At this stage we can ask: how national are European examinations? Is there one examination for all? And, if not, are there problems in comparability?

As we have noted, the term "national" can mean many things. In European systems of examinations, central governments play some role. The role is most direct and influential when the MOE sets, administers, and marks examinations (as in Ireland). It is less direct and influential when the Ministry sets examinations but does not score them (as in Germany). Other types of less direct influence occur when the central Ministry has a general supervisory role in the activities of examining bodies (as in the United Kingdom). Regionalization of the administration of

examinations, as occurs in France, Germany, and the United Kingdom, all large countries, dilutes the authority of the central Ministry.

Patterns of authority in examinations may vary within a country according to the type of examination and the grade level of candidates. The administration of technical and vocational examinations, which we did not consider in this paper, can be extremely complex. Sometimes such examinations are organized by the Ministry but more frequently they are carried out at the level of the school or fall within the province of specific examining groups. There are cases in which students from one country (e.g., Ireland) take examinations, particularly in the vocational technical area, but not exclusively so, which are set and marked in another country (United Kingdom).

Variation relating to grade level occurs when a central body assumes authority for examining at one level, but not at others. In a number of countries, central authorities are more involved in examinations at higher levels than at lower levels (e.g., Greece, Portugal, Spain). In other countries, the same organization is responsible for examinations at all levels of the secondary sector (e.g., France, Ireland).

This description may not help very much in deciding what can be considered a "national" examination or who the authority responsible for that examination should be. Different countries have worked out different procedures in line with their school organization and traditions.

What has the European experience to say about having one examination for all students? Obviously, where examinations, even at a single level, are school-based or the responsibility of a number of authorities (regional or otherwise), there is not a common examination. Thus, in France, the area in which a student lives will determine the precise Brevet or Baccalaureat which he or she will take. In Britain, the choice for GCSE at 16+ and GCE at 18+ will depend on the choice of the school which the student attends.

Again, in countries which have differentiated secondary education, the possibility of one examination for all does not arise as long as examinations are geared to particular syllabuses which are likely to vary from one school type to another. It is impossible to get precise figures on the proportions of age cohorts who take particular examinations. The data in Table 4 on the percentages of students in general education and in technical/vocational education, taken in conjunction with enrollment rates in Table 5, may be taken as a rough indication of the proportion of students taking examinations in the two curricular areas. In Belgium, Germany, Spain, and the Netherlands, one would expect close to one half of the students still attending school not to take an academic-type examination.

It could be argued that a similar type of examination, if not the same examination, could be provided for all. Thus, we could say that a common system of examinations rather than a common

examination operates in Britain, and France at 16+, (Kingdon & Stobart, 1988). How common, however, are the experiences of examination candidates in such a system? Given the range of options available, the answer must be that great variation exists in students' experiences.

In Britain, there is a choice of examination board or boards which will usually be made by the school. Then there is the choice of subjects and subject levels--partly a school decision and partly a student one. The choice often creates problems for schools, complicated it would appear in Britain by a preference "to do worse on those examinations which carry greater prestige rather than to do better on those that are more useful" (Macintosh, 1986, p.22). Finally, the student, when he or she actually comes to sit the examination, may have a choice of questions from which to select. Thus, candidates can achieve the same grade by answering different questions (Creswell, 1987; Orr & Nuttall, 1983).

At the 18+ level, since considerable selection and attrition has taken place, the question of an examination for all does not arise. However, even if we confine our attention to those students taking examinations at the end of academic (rather than vocational) schooling in Germany and France, we find that they have a variety of options and experiences. In Germany, Abitur candidates take examinations set by different Ministries, a widely different assortment of subjects, different papers in nominally the same subject, with different weights being given to the results depending on the option chosen. The French Baccalaureat, although it retains a large core of general education subjects which all candidates are required to take, albeit with different weights, also offers a considerable variety of options. Four options in 1950 have grown to 38 in 1988 (Noah & Eckstein, 1990).

Given these situations, it is not surprising that questions are frequently heard about the comparability of examinations operating within a single "system" (see Murphy & Torrance, 1988; Noah & Eckstein, 1990). In the context of the Baccalaureat, Eckstein & Noah (1989) have commented on the strongly demarcated hierarchy of prestige that surrounds the examination, with the mathematical options at the top and the vocational options at the bottom. They conclude that "the French examination authorities have been prepared to yield more and more comparability across candidates in an explicit trade-off to meet what are essentially political demands for 'relevance' and 'access'".

Faced with eight examining bodies at the General Certificate of Education (GCE) level and five at the General Certificate of Secondary Education (GCSE) level, the greatest efforts to achieve comparability across examinations have been made in Britain. The development of criteria for a range of individual subjects has been a step designed to help improve comparability (see Creswell, 1987; Gordon & Stobart, 1988). Further, all the examining bodies operate under the supervision of the School Examinations and Assessment Council, which, among other things, arranges for a

team of examiners from one examining board to work at another board for an extended period of time, observing procedures, the marking of scripts, and standards. The Intergroup Research Committee of the boards, made up of research officers, also carries out a program of continuous research relating to comparability between boards, subjects, and modes of examining. Staff read scripts from other boards, paying particular attention to borderline grades. To supplement these procedures, there is a strong tradition of research on British examinations (e.g., Nuttall, Backhouse & Wilmott, 1974; Nuttall & Wilmott, 1972).

It would seem from the European experience that a single common examination for all can only be provided if the content/skills assessed are relatively basic or if teachers play a major role in assessing students' performance. Attempts in Britain to provide an external examination covering a wide range of achievement do not seem to have been entirely satisfactory. While it was hoped that the General Certificate of Secondary Education would cater for a wider range of students than the GCE/CSE systems which it replaced, this does not seem to have happened. Many syllabuses have become less accessible to lower-ability candidates and in particular to those candidates who in the past would have been catered for on the basis of teacher-designed syllabuses and examinations (CSE Mode 3) (Kingdon & Stobart, 1988; Murphy, 1989). Ironically, the attempt to provide an examination with a wide-achievement span seems to have been unsuccessful not only in the case of lower-achieving students but is reported (in newspapers and on television) to have lowered the standards of the higher-achieving students who go on to do GCE A-level examinations at 18+. Teachers say that these students are less well-prepared in such areas as science and mathematics, while some university teachers have expressed the opinion that a further year at university will be necessary if students at graduation are to reach the same level as their predecessors.

The Cost of Examinations

We were not able to obtain extensive information about the costs involved in examining in European systems. In countries in which teacher assessments play a major role, costs are largely absorbed in teachers' salaries.

Information on external examinations taken at 16+, from Britain for the GCSE (in which students on average take about five subjects) and from Ireland for the Junior Certificate (in which students on average take about seven subjects), indicates that the cost of examining a student is $107. (In Ireland, candidates pay about 40% of the cost.) If the state of Massachusetts were to adopt one of these models to test its 65,000 16-year old students, the cost would be almost $7 million. At present, it spends $1.2 million to test the reading, writing, and arithmetic achievements of students at three grade levels (3, 6, 9 and 4, 8, 12 in alternate years), using machine scoring for the reading and arithmetic tests. It is clear that the adoption of an external European model of

testing would have very substantial financial implications for the Commonwealth.

To test the 3 million 16-year olds in the United States would cost over $320 million using the British or Irish model. Costs would be reduced if multiple-choice tests were used, if students were examined in fewer subjects, if the range of options available to students were reduced, and if examination papers were not released. Costs would be increased very considerably if more "authentic" measures of student achievement were used. It is also likely that labor costs (e.g. in scoring examinations) would be higher in the United States than in Britain or Ireland.

In some European countries (Britain, Ireland) and in the Canadian province of Alberta (Calder, 1990), some students repeat the last year of secondary school in an attempt to raise their already passing scores on examinations to qualify for a university place. This involves considerable expense to taxpayers which should be considered in making cost estimates of national examinations.

CONCLUSIONS

We may take it as axiomatic that an educational system develops in response to the values, needs, and aspirations that characterize a nation. We may also regard it as axiomatic that the components of any system interlock in an idiosyncratic way to contribute to the realization of a nation's goals for education. This is not to say that the performance of educational systems should not be reviewed from time to time to see how effectively they are performing their tasks and, in particular, to determine if they are meeting new needs that continually arise in our fast-changing society. However, it does mean that if one decides to select a feature of another educational system in the search for solutions to one's own educational problems, one should ensure in the first place that one understands the functioning of that feature in the foreign system (including any problems that have been identified in its operation) and, in the second place, that the proposed transplant is likely to be compatible with the host system.

There are many features of an educational system and of the wider socio-economic and cultural system in which education is carried out that one could nominate as being likely, in interaction with other features, to contribute to students' achievements in schools. For example, some systems (including all European countries) use inspectoral systems to monitor the quality of education in schools. Again, some systems have a longer school year than others (see Table 1), presumably providing more "time on task" for students. Systems vary in the quality of candidate they recruit to the teaching profession and in the type and length of training they provide. Most European systems recruit better students, on average, to teacher preparation than is the case in the United States. The support which homes provide is also generally accepted as an important factor in student learning.

To isolate national examination systems from their context, reduce them to a consistent relationship with achievement, educational quality, increased global competitiveness, and suppose they have the same effect in all contexts, is based on a false sense of technological optimism. Indeed, the conviction that the establishment of national examinations, standards, and curricula will usher in a golden age of education is consistent with the great tradition of optimistic technophilia of the last two centuries (Winner, 1977, 1986). There is the further danger that focusing on examinations and assessment may lead us not only to over-look other important aspects of the system that need attention (e.g., the need to modify instructional techniques for at-risk youth) but actually to aggravate existing problems (e.g., difficult examinations and graduation requirements may lead to an increase in drop-outs) (MDC, 1988).

We do not know of any evidence that would tell us whether having or not having external examinations in the United States would have the effects which proponents of national

examinations are at present suggesting. In this paper, we described the ethos in which examinations grew in Europe, the complexity of the systems in which they are embedded, and some of the problems that have been noted in their operation. Whether or not examination systems introduced to the United States would work in the same way as they do in Europe and, in particular, whether or not they would impact on educational standards are matters that require serious consideration.

We will conclude by considering the relevance of European experience with examinations to the proposals for examining that have been made in two reform waves in the United States which we described above. Although there is considerable complexity and variation in European systems of examinations, there are, as we noted, certain features that characterize several systems. In considering American proposals, we will regard European experience as particularly relevant, if it occurs in several countries or even if it is found in only one country, we may still cite it if it seems to speak directly to an American proposal. The British experience seems to fit this latter criterion since some of the proposed American reforms seem to have been inspired by, if not actually modelled on, the British system. In applying any European experience, we should not lose sight of differences between the United States and European countries in the political, social and educational contexts in which examination systems function.

Purpose of Testing

In general terms, proposals for examinations in the United States are directed towards raising educational standards which, in turn, it is hoped will improve the economic competitiveness of the nation. It is envisaged that the examinations will have their effect by promoting a common curriculum in schools across the country and by putting pressure on teachers and students to achieve a high standard of performance on the examinations.

When one looks at proposals in more detail, however, one finds a wide variety of purposes being posited for examinations. Some of them relate to decisions within the school--the identification of students for remedial intervention or for advanced or accelerated work (National Commission on Excellence in Education) or for grade promotion (Education Commission of the States Task Force on Education for Economic Growth). Others relate to decisions which might involve leaving school. The Commission on the Skills of the American Workforce sees examinations as providing information relevant to whether a student enters a college-preparatory program, studies for a technical certificate, or goes to work. Boyer's report on secondary education regards examinations as being relevant to decisions at a later stage about whether one goes to work or to third-level education. These proposals all emphasize the use of examinations for guidance. However, they do not make clear why examinations are needed to improve the

guidance services which are already in place in American schools. Neither do they face the issue of how examinations are going to motivate students to work harder if high stakes are not attached to performance on those examinations. While the proposals may not explicitly acknowledge the fact, it would seem that they envisage the use of examination results to make decisions about students, as indeed the Education Commission of the States Task Force in Education for Economic Growth does when it says that examination performance could be used in deciding grade promotion of students, and Public Law 100-297 does when it proposes the use of examinations to identify outstanding students.

Another proposed use of examinations is the certification of students' achievements. This use is proposed by the National Commission on Excellence in Education, the Commission on the Skills of the American Workforce, and Public Law 100-297. However, there is not total agreement among the reports on the use of examinations for certification. Educate America, in proposing the testing of all high-school seniors, specifies that the examinations should be held in the fall of grade 12 so that they would not be used for graduation.

Other purposes proposed for testing are accountability of students, schools, and states (Educate America) and monitoring of standards in schools (National Commission on Excellence in Education). While the idea that examinations would motivate students to work harder runs through all the proposals, it is most explicit in the Educate America proposal.

The proposals are most compatible with European practice when they emphasize the use of tests for the two inter-related functions of certification and selection. The origin and traditions of examinations in Europe exhibit a major concern with selection, particularly for third-level education and certain jobs. As the educational systems of the countries have come to resemble more that of the United States in its student retention rate and curriculum comprehensivization (up to the age of about 16), the emphasis in examinations has shifted from selection to certification. However, examination results continue to be used for selection, both inside the school system and outside it. An inevitable consequence of accepting the spirit of European examinations (even if not the details) would seem to involve a greater emphasis on the selection and categorization of students in American schools.

A number of further aspects of the purposes of European examination systems seem relevant to the American proposals. The public-examination systems in Europe are not used formally for accountability or monitoring of standards. Rather, examinations are used to make decisions about individual students, not about teachers, schools, or districts (though parents may make judgements about schools on the basis of their examination results). Neither are examinations used to help improve or monitor standards. Efforts in Britain to allow comparability between marks from successive examinations set on the same syllabus are made so that users can

be confident that a given grade has the same meaning from year to year, rather than to improve overall standards.

For the most part, quality control and accountability in European educational systems are the function of school inspectorates. All countries also participate in comparative studies of educational achievement and some have national-assessment systems similar to NAEP, in which individual school performance is not identified. While existing public-examination systems do not seem appropriate to serve the functions of monitoring or accountability, efforts are being made in Britain to develop a system which will serve these functions as well as the traditional student certification function of public examinations for students up to the age of 16 years.

While a single assessment system is unlikely to meet efficiently a variety of purposes, neither are the purposes of examinations completely independent of each other. Thus, examinations are likely to have a motivating effect on some students only if performance on them has some real consequence for the students (e.g., admission to a third-level institution, selection for a job) or if examination performance is used for some other high-stakes purpose, such as teacher accountability.

A final point to note in considering the relevance of the purposes of examinations in Europe for the United States is that European examinations fit into a differentiated (highly so in some countries) educational structure. All systems have different types of school and curricula at the upper-secondary school level and examination performance at the end of lower secondary (about age 16) is an important factor in determining the type of school and course in which a student will find himself or herself.

Age/Grade of Testing

Apart from one proposal to test students at grades 4 and 8 (President's Education Policy Advisory Committee) and another to test at unspecified major transition points (National Commission on Excellence in Education), all the American proposals envisage examinations at either age 16 or at some point during the senior-high school years, including the point of graduation.

The proposals which confine testing to age 16+ are compatible with European practice. Formal national external examinations below the age of 15 or 16 years no longer exist in any European country. Even at age 16+, six of the twelve European community countries do not have an external examination. In two further countries, examinations are set by an external agency but are marked by candidates' own teachers. The trend in most countries, with the exception of Britain and France during the 1980s, has been to reduce the external element in examinations at this stage (age 16+).

Britain also differs from other EC countries in that it proposes to institute national testing of students at ages 7, 11, 14, and 16, with a new form of teacher-administered tests. However, this testing, except at ages 14 and 16 will not form part of the public-examination system.

Responsibility for Testing

Proposals for national examinations in the United States are not clear about who should be assigned responsibility for the examinations. The decision, however, is an important one since the responsible agency will exercise considerable control over teaching and learning in schools. Some indications are provided in the proposals. The responsible body should be external to the school (Commission on the Skills of the American Workforce) or school district (National Commission on Excellence in Education) and it should be a national system (but not controlled by the federal government), involving state and local tests (National Commission on Excellence in Education). However, Public Law 100-297 would be a federal test under the control of the Secretary of Education. A proposal has also been made for an agent to build and administer the examinations in all states (Educate America) while another recommends the establishment of a National Board of Educational Standards to calibrate to a common national standard examinations which would be built under the auspices of state examining boards (National Center on Education and the Economy/Learning Research and Development Center at the University of Pittsburgh).

In European countries, with the exception of Britain and Germany, the central government has a major responsibility for curricula and examinations. Up to recently in Britain, curricula were a matter for local education authorities and schools, while examinations were controlled by independent examining bodies with loose links to universities (except for the London University Examining Board which is a part of the university). In the last few years, central government has been adopting an increasingly active role in the specification of curricula and in the control of examinations. In Germany, responsibility for curricula and examinations rests with the eleven state governments.

In these two large countries, as well as in another large country, France, one authority does not assume responsibility for the administration of examinations. Such countries probably provide a better model for the United States than smaller countries in which the Ministry of Education has responsibility for public examinations.

While Ministries of Education in all European countries play a role in examinations, the important role played by other interested parties should be recognized. In the setting of papers and standards, teachers, subject specialists, and university personnel, in addition to Ministry officials (school inspectorate), play a role. Teachers in all countries also mark examinations and assign grades to candidates. At both the 16+ and 18+ levels, in nine countries, whether or not

examinations are set by an authority outside the school, candidates' own teachers play a major role in marking examinations. In the other countries, the major role in marking is played by teachers from other schools who are not aware of the identity of candidates.

Areas of Testing

Although there are references to tests of "academic excellence" (Public Law 100-297) and of what students ought to know and be able to do when they leave school, including the knowledge needed to participate in a democratic society (Commission on the Skills of American Workforce, Educate America), most of the American proposals for what should be examined are more specific. A number of reports mention basic or general achievement and skills (Education Commission of the States Task Force on Education for Economic Growth, National Alliance of Business), while several spell these out in terms of traditional subject areas. English, mathematics, science, history, and geography or social studies are proposed by the President's Education Policy Advisory Committee and by Terrence Bell, who also adds computer studies. Educate America lists the same subject areas but instead of English proposes reading and writing.

European examination systems tend to emphasize broad cultural goals in their examinations rather than preparation for later life, though the latter of course is not ignored. Some European systems provide external examinations in a small core of subjects at the 16+ level--two (Danish and mathematics) in Denmark or three (French, mathematics, History/Geography) in France. Others allow students to take a larger number of subjects and, with some restrictions, to choose the subjects they will take (Britain, Ireland). In these countries, examinations are offered at different levels. Different types of examinations are provided in countries which have a differentiated educational structure according to the type of school attended by the student (Germany, Netherlands).

No European country offers a single examination for all students at the 18+ level. By this stage, most countries offer one system of examinations for students following academic university-oriented curricula and another system for students following more vocationally-oriented curricula. Within the academically-oriented system, students may be required to take certain core subjects in combination with options they themselves choose. A choice of levels varying in difficulty (higher/lower; honours/pass; higher/ordinary) within subjects will also be available to students. The British systems at 18+ differs from other European systems in its high level of specialization.

It is clear that systems of examination in Europe, especially during the senior high-school years, are much more complex than the systems being proposed for the United States. The European experience can contribute little to the design or implementation of proposals for a single external examination for all students at the upper-secondary school level.

Methods of Testing

Proposals about methods of testing in the American context range from the use of standardized tests (National Commission on Excellence in Education) to the use of "state of the art" assessment practices (Educate America) which, in current thinking would include the performance, portfolio, and project examinations specified by the Commission on the Skills of the American Workforce. Other proposals recommend subject-matter examinations in core curriculum subjects as we noted above, which presumably would use the predominant European mode of having students write extended essays.

There is little that European systems of examining can tell us about the value of such procedures as portfolio and performance assessment. While efforts have been made to develop such procedures in Britain (sometimes called records of achievement), the efforts have been inspired by perceived inadequacies of public examinations to record accurately and in sufficient detail students' achievement records. This work has focused in the first place on lower-achieving "non-academic" students who were being poorly served by the examination systems, though it is hoped to extend the procedures to all students. With several competing models of assessment being developed or reformed in Britain at the moment (public examinations, Student Assessment Tasks, and profiles of achievement), it is difficult to predict what the final shape of assessment practice will be by the end of the 1990s.

One Test or One System of Testing

American proposals in some cases indicate that a single set of examinations would be used to test all students at a given age or grade level. In other cases, the suggestion is made that a system of examinations, rather than a single examination is needed.

As we have seen above, the larger European countries (Britain, France, and Germany) have a number of examination authorities that devise and administer their own tests. In France, the examinations of the different authorities are based on a common curriculum; in Britain and Germany, they are based on separate curricula.

In two of the remaining countries that use an external examination at 16+ (Denmark, Netherlands), scripts are marked by candidates' own teachers. In the third (Ireland) students select from a range of subjects offered by the examination authority. Thus, a common examination, as

distinct from a common system, exists in only two countries at 16+ (Denmark and the Netherlands).

The situation at 18+ is, as we saw, much more complex. Students' examination experience can vary, depending on the region of the country in which they live (France, Germany), the examination authority they choose (Britain), and the curriculum options they have chosen in the upper-secondary school (which vary in subject matter and in level within subject).

The question of comparability arises when students come to use their certificates either for entry to third level education or in seeking employment. In Britain and Ireland research efforts have been directed towards investigating the comparability of performance of students who take different groupings and/or levels of subjects. On the whole, however, the question of comparability of examination performance within countries does not appear to be a major problem. Rules of thumb are usually devised on the basis of a judgmental process relating to grading and comparability of grades and these are generally accepted by universities and employers.

Effects of Examinations

We have already considered in the paper many of the effects which have been attributed to examinations to which high stakes are attached. These include motivational ones ("making" teachers and students work), focusing teachers' and students' activities, cramming, emphasizing memory work, and developing test-taking skills. Here, we will just note that positive motivational effects are likely to operate only if students perceive they have a good chance of achieving the rewards attached to high test performance. For students who are not likely to do well (and thus for whom the stakes are, in effect, irrelevant) the negative effects of examinations have been a matter of serious concern in many European countries. Over the years, efforts have been made in many countries to adapt the examination system to suit these students.

It is important to note that in Europe the impact of examinations on teaching and learning--what is taught and learned and how it is taught and learned--is mediated through the availability of past examination papers. An American proposal (Public Law 100-297) not to release test papers after examinations would diminish the impact of the examinations on teaching and learning in the schools.

Cost

The only United States proposal for a national test that offers a cost estimate is that of Educate America; their figure is $30 per student. As we saw, cost figures in Europe were not readily available except for Ireland and the GCSE in Britain. As we noted, the cost for an essay on demand exam at age 16+ (consisting of between 5 and 7 separate exams in Britain and Ireland

respectively) was $107. The labor costs (e.g. in scoring the exams) would probably be higher in the United States than those incurred in Britain and Ireland. In many countries the exam costs are largely absorbed in teachers' salaries. Costs would surely be higher than the $107 figure if more "authentic" assessment measures of student achievement were used. We also pointed out that repeating the last year of secondary school to improve exam scores involves considerable expense to taxpayers.

Fitting Examinations into the Existing System of Testing

With the exception of Britain, European countries do not have external systems of examinations other than the public-examination system. In most countries, little use is made of standardized tests which have been developed outside the school. The formal aspect of internal school assessment mirrors the public-examination system. Students take examinations which are similar to public examinations at the end of each school term and may take "mock" public exams some months before the actual public examinations. The United States has an extensive commercial infrastructure for developing, marketing, scoring and reporting of standardized achievement tests. Companies make their money from scoring and reporting rather than from the sale of the reusable test booklets. These tests are widely used at all levels of education.

The place of any national exam, or systems of exams within the present system of testing needs considerable thought. For example, to use the essay form (as in Europe) for the national exam while the multiple choice form continues to be widely used by states or districts could be confusing to teachers and students. In developing a national exam, or a system of national exams an infrastructure will have to be created for developing and scoring of assessment techniques, the reporting of results and the overseeing of the entire exam operation. In Europe teachers are an integral part of the exam infrastructure as are the MOE inspectors. We would need to consider Europe's experience in this regard, particularly their trust of teachers. Discussion of the infrastructure for an American national examination system also raised serious issues of cost and quality control. In Europe, control is governmental or quasi governmental through the MOE and the established inspectorates. Cost and oversight issues associated with using commercial companies for development, scoring and reporting will need to be weighed against developing a new infrastructure for assessment in the United States.

REFERENCES

Amano, I (1990). Education and examination in modern Japan. Translated by W.K. Cummings and F. Cummings. Tokyo: University of Tokyo Press

Anderson, B., & Pipho, C. (1984) State-mandated testing and the fate of local control. Phi Delta Kappan, 66, 209-212.

Basalla, G. (1988). The evolution of technology. New York: Cambridge University Press.

Bell, R., & Grant, N. (1974). A mythology of British education. London: Panther.

Bell, T.H. (1984). American education at the crossroads. Phi Delta Kappan, 65, 531-34.

Beymer, L. (1966). The pros and cons of the national assessment project. The Clearing House, 40, 540-543.

Bloom, B.S. (1961). Evaluation in higher education: A report of the seminars on examination reform organized by the university of New Delhi grants commission under the leadership of Dr. Benjamin Bloom. New Delhi: University Grants Commission.

Bolger, N., & Kellaghan, T. (1990). Method of measurement and gender differences in scholastic achievement. Journal of Educational Measurement 27, 165-174.

Boorstin, D.J. (1978). The republic of technology. New York: Harper & Row.

Booth, J. (1847). Examination the province of the state - Or the outlines of a practical system for the extension of national education. London: Parker.

Bowler, R.F. (1983). Payment by results: A study in achievement accountability. Unpublished doctoral dissertation. Boston College.

Boyer, E.L. (1983). High school: A report on secondary education in America. New York: Harper & Row.

Broadfoot, P. (1984). From public examinations to profile assessment: The French experience. In P. Broadfoot (Ed.), Selection, certification and control: Social issues in educational assessment. Lewes, Sussex: Falmer.

Broadfoot, P. (1987). Social perspectives on recent developments in assessment and examination procedures in France. Irish Journal of Education, 21, 36-52.

Brod, R.I., Farnham, N., Mayer, W.V., & McCaughey, R.A. (1982). University entrance examinations and performance expectations: A report to the National Commission on Excellence in Education, 1982. Eric Document Reproduction Service No. ED 277 102.

Calder, P. (1990) Impact of diploma examinations on the teaching learning process. Edmundton Alberta: Alberta Teachers' Association.

Campbell, R.F., & Scroufe, G.R. (1965). Toward a rationale for federal-state-local relations in education. Phi Delta Kappan, 47, 2-7.

Cannell, J.J. (1989). The "Lake Wobegon" report: How public educators cheat on standardized achievement tests. Albuquerque, NM: Friends for Education.

Chira, S. (1989, December 26). Support grows for national education standards. New York Times, A1, B10-11.

Chira, S. (1991, March, 24) The big test: How to translate the table about school reform into action? New York Times, Section 4, 1&4

Christie, T. & Forrest, G.M. (1981). Defining public examiniation standards. Basingstoke, England: Macmillan

Cohen, M. (1991, January 20). National test for national goals? Boston Globe, A21.

Cohen, M. (1991, February 17). National test for seniors? Boston Globe, A16, 19.

Coleman, J.S., (1990). Foundations of social theory. Cambridge MA: Harvard University Press

Coleman, J.S., Campbell, E.Q., Hobson, C.J., McPartland, J., Mood, A.M., Weinfeld, F.D., & York, R.L. (1966). Equality of educational opportunity. Washington, DC: Office of Education, U.S. Department of Health, Education and Welfare.

Coleman, J.S. & Husén, T. (1985). Becoming adult in a changing society. Paris: Organization for Economic Co-operation and Development

Commission on Mathematics. (1959). Program for college preparatory mathematics. USA. New York: College Entrance Examination Board.

Commission on the Skills of the American Workforce (1990). America's choice: High skills or low wages? Rochester NY: National Center on Education and the Economy.

Consultative Committee on Secondary Education (1938). Report of the Consultative Committee on Secondary Education with special reference to grammar schools and technical high schools. London: Her Majesty's Stationery Office.

Creswell, M.J. (1987). Describing examination performance: Grade criteria in public examinations. Educational Studies, 13, 247-265.

Cuban, L. (1986). Persistent instruction: Another look at constancy in the classroom. Phi Delta Kappan, 68, 7-11.

Cuban, L. (1990). Four stories about national goals for American education. Phi Delta Kappan, 72, 265-71.

Cummings, W.K. (1980). Education and equality in Japan. Princeton, NJ: Princeton University Press.

Cunningham, A.E. (1989). Eeny, meeny, miney, moe: Testing policy and priorities in early childhood education. Chestnut Hill MA: National Commission on Testing and Public Policy, Boston College.

Curriculum and Examinations Board. (1985). Assessment and certification: A consultative document. Dublin: Author.

De Witt, K. (1991a, January 14). National tests urged for public schools. New York Times, A20.

De Witt, K. (1991b, February 2). The push to consider a once taboo subject: National school tests. New York Times, 5.

Du Bois, P.H. (1970). A history of psychological testing. Boston: Allyn & Bacon

Durkheim, E. (1979). The evolution of educational thought. Translated by Peter Collins. London: Routledge & Kegan Paul.

Eckstein, M.A., & Noah, H.J. (1989). Forms and functions of secondary-school leaving examinations. Comparative Education Review, 33, 295-316.

Educate America Inc. (1991). An idea whose time has come: A national achievement test for high school seniors! Morristown, NJ: Author.

Education Commission of the States (1984). Action in the States Task Force on Education for Economic Growth Denver, CO

Eisemon, T.O., Patel, V.L., & Abagi, J. (1987). Read these instructions carefully. Examination reform and improving health education in Kenya. International Journal of Educational Development, 7, 1-12.

Elam, S.M. (1990). 22nd Annual Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 72, 41-53.

Elam, S.M., & Gallup, A.M. (1989). 21st Annual Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 71, 41-57.

Ellul, J. (1964). The technological society. New York: Vintage Books.

Ellul, J. (1990). The technological bluff. Grand Rapids, MI: Williams B. Eerdmans.

European Communities Commission (1987). The education structures in the member states of the European Communities. Brussels: Author.

European Communities Commission (1990). Girls and boys in secondary and higher education. Brussels: Author.

Fairbairn, D.J. (1988). Pupil profiling: New approaches to recording and reporting achievement. In R. Murphy, & H. Torrance, (Eds.), The changing face of educational assessment. Milton Keynes, England: Open University Press.

Fallows, J. (1987). Gradgrind's heirs. Atlantic, 259(3), 16-24.

Feneville, J. (1987). Un apercu du systeme educatif Francais. Paris: Centre International d'Etudes Pedagogique.

Finn, C.E. (1991, January 23). Reinventing local control. Education Week, 40 & 32.

Foden, F. (1989). The examiner, James Booth and the origin of common examinations. Leeds: School of Continuing Education, University of Leeds.

Foucault, M. (1979). Discipline and punish: The birth of the prison. Harmondsworth, England: Penguin.

France. Ministere de l'Education Nationale (1990a). La rentree scolaire 1990. Paris: Author.

France. Ministere de l'Education Nationale (1990b). Reperes et references statistiques sur les enseignements et la formation. Paris: Author.

Gallup, G. (1978). 10th Annual Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 60, 34-46.

Gallup, G. (1980). 12th Annual Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 62, 33-46.

Gallup, A. (1986). 18th Annual Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 68, 43-60.

Gallup, A.M., & Clark, D.L. (1987). The 19th annual Gallup poll of the public's attitudes towards the public schools. Phi Delta Kappan, 69, 17-30.

Gallup, A.M., & Elam, S.M. (1988). 20th Annual Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 70, 33-46.

Gayen, A.K., Nanda, P.D., Duari, P., Dubey, S.D., & Bhattacharyya, N. (1961). Measurement of achievement in mathematics: A statistical study of effectiveness of board and university examinations in India, Report 1. New Delhi: Ministry of Education.

Goacher, B. (1984). Selection post-16: The role of examination results. London: Methuen.

Gordon, P., & Lawton, D. (1978). Curriculum change in the 19th and 20th centuries. New York: Holmes & Meier.

Great Britain. Department of Education and Science (1989). Education statistics for the United Kingdom, 1989 edition. London: HMSO.

Haertel, E. (1989). Student achievement tests as tools of educational policy: Practices and consequences. In B. Gifford, (Ed.), Test policy and test performance: Education, language and culture. Boston: Kluwer Academic.

Haladyna, T.M., Nolen, S.B., & Hass, N.S. (1989). Report to the Arizona legislature: Test score pollution. Phoenix, AZ: Arizona State University West Campus.

Halls, W.D. (1965). Society, schools and progress in France. Oxford: Pergamon.

Hameyer, U., Frey, K., Haft, H., & Kuebart, F. (1986). Curriculum research in Europe. Lisse: Swets & Zeitlinger.

Hand, H.C. (1965). Integrity and instructional innovation. Educational Forum, 30(1), 7-16.

Hand, H.C. (1965). National assessment viewed as the camel's nose. Phi Delta Kappan, 47, 8-13.

Hand, H.C. (1966). Recipe for control by the few. Educational Forum, 30(3), 263-272.

Haney, W., Madaus, G.F., & Lyons, R. (in press). The fractured market place for standardized testing. Boston: Kluwer Academic.

Hanna, P.R. (1961). A national commission for curriculum research and evaluation. Phi Delta Kappan, 42, 331-338.

Hargreaves, A. (1988). The crisis of motivation and assessment. In A. Hargreaves, & D. Reynolds, (Eds.), Educational policy: Controversies and critiques. London: Falmer.

Hearnden, A. (1986). Comparative studies and curriculum change in the United Kingdom and the Federal Republic of Germany. Oxford Review of Education, 12, 187-194.

Heyneman, S.P. (1987). Uses of examinations in developing countries: Selection, research, and education sector management. International Journal of Educational Development, 7, 251-263.

Holmes, B. (1983). International handbook of education systems. Volume 1. Europe and Canada. New York: Wiley.

Holmes, E.G.A. (1911). What is and what might be: A study of education in general and elementary in particular. London: Constable.

Hopmann, S. (1991) The multiple realities of curriculum policy making Paper presented to the symposium on 'International perspectives on curriculum history; The social system of curriculum policy and reforms.' AERA Annual meeting Chicago, April 4, 1991.

Holt, J. (1969). The underachieving school. London: Pitman.

Hotyat, F. (1958). Evaluations in education. In UNESCO (Ed.), Reports on an International Meeting of Experts held at the UNESCO Institute for Education. Hamburg: UNESCO.

Howe, H. (1990, December 12). The gap in our thinking about kids. Education Week, 48

Husen, T., & Postlethwaite, T.N. (Eds.) (1985). The international encyclopedia of education. Research and studies. Oxford: Pergamon.

ILEA Research & Statistics (1990). Differences in examination performance. (RS 1277/80). London: Author.

Ingenkamp, K. (1977) Educational assessment. Windsor, England: NFER Publishing Co.

Ireland. Department of Education (1954). Report of the Council of Education as presented to the Minister for Education. Dublin: Stationery Office.

Kamii, C. (in press). Achievement testing in early childhood education: The games grown-ups play. Washington, DC: National Association for the Education of Young Children.

Kandel, I.L. (1936). The international examinations inquiry. Education Record, 17 (January, suppl. no. 9), 50-69.

Kellaghan, T., & Greaney, V. (in press). Using examinations to improve education: A study in fourteen African countries. Washington, DC: World Bank.

Kellaghan, T., & Lewis, M. (1991). Transition education in Irish schools. Dublin: Educational Company.

Kelly, A.V. (1989). The curriculum. Theory and practice. (3rd ed.). London: Chapman.

Kelly, D. (1991, February 5). Some educators get testy over national exam plans. USA Today, 8D.

Kerr, C. (1991, February 27). Is education really all that guilty? Education Week, 30.

Kingdon, M. & Stobart, G. (1988). GCSE examined. London: Falmer

Kreitzer, A.E., Haney, W., & Madaus, G.F. (1989). Competency testing and dropouts. In E.F. Lois Weis, and H.G. Petrie (Eds.), Dropouts from school: Issues, dilemmas, and solutions, Part II. New York: State University of New York.

Lawton, D. (1980). Politics of the school curriculum. London: Routledge & Kegan Paul.

Linn, R.L. (1983). Testing and instruction: Links and distinctions. Journal of Educational Measurement, 20, 179-189.

Little, A. (1982). The role of examinations in the promotion of the 'Paper Qualification Syndrome'. In International Labour Office (Ed.), Paper qualifications syndrome (POS) and unemployment of school leavers: A comparative sub-regional study. Addis Ababa: International Labour Office.

Lundgren, U. (1986). European tradition of curriculum research. In V. Hameyer et. al. (Ed.), Curriculum research in Europe. Lisse: Swets & Zeitlinger.

Macintosh, H. (1986). The sacred cow of coursework. In C. Gipps (Ed.), The GCSE: An uncommon examination. London: University of London Institute of Education.

Madaus, G.F. (1983). Minimum competency testing for certification: The evolution and evaluation of test validity. In G.F. Madaus, (Ed.), The courts, validity and minimum competency testing. Boston: Kluwer-Nijhoff.

Madaus, G.F. (1985). Public policy and the testing profession - You've never had it so good? Educational Measurement Issues and Practice, 4(4), 5-11.

Madaus, G.F. (1988). The influence of testing on the curriculum. In L. Tanner, (Ed.), Critical issues in curriculum. Eighty-seventh Yearbook of the National Society for the Study of Education, Part 1. Chicago: University of Chicago Press.

Madaus, G.F. (1990). Testing as a social technology: The inaugural Boisi lecture in education and public policy. Center for the Study of Testing Evaluation and Public Policy, Boston College.

Madaus, G.F., Airasian, P.W., & Kellaghan, T. (1980). School effectiveness: A reassessment of the evidence. New York: McGraw Hill.

Madaus, G.F., & Greaney, V. (1985). The Irish experience in competency testing: Implications for American education. American Journal of Education, 93, 268-294.

Madaus, G.F., & Kellaghan, T. (in press). Curriculum evaluation and assessment. In P.W. Jackson, (Ed.), Handbook of research on curriculum. New York: Macmillan.

Madaus, G.F., & Macnamara, J. (1970). Public examinations: A study of the Irish leaving certificate. Dublin: Educational Research Centre, St Patrick's College.

McDowell, R.B., & Webb, D.A. (1982). Trinity College Dublin 1592-1952: An academic history. Cambridge: Cambridge University Press.

McGucken, W.J. (1932). The Jesuits and education. Milwaukee WI: Bruce.

MDC (1988). America's shame, America's hope. New York: Charles Stewart Mott Foundation.

Mehrens, W.A., & Kaminski, J. (1988). Using commercial test preparation materials: Fruitful, fruitless, or fraudulent? Washington DC: National Council on Measurement in Education.

Meisels, S.J. (1989). High-stakes testing in kindergarten. Journal of Educational Leadership, 46(7), 16-22.

Montgomery, R.J. (1965). Examinations: An account of their evolution as administrative devices in England. London: Longman.

Morris, G.C. (1969). Educational objectives of higher secondary school science. University of Sydney, Australia.

Mortimore, J., & Mortimore, P. (1984). Secondary school examinations. London: University of London Institute of Education.

Moses, S. (1991, January). Motivation neglected in educational reform. APA Monitor, 34.

Moses, S. (1991, February). 'Educational excellence' goal is unmet. Monitor, 40.

Mukerji, S.N. (1966). History of education in India: Modern period. Baroda: Acharya Book Depot.

Murphy, R. (1989). The birth of the GCSE examination. In A. Hargreaves, & D. Reynolds, (Eds.), Educational policy: Controversies and critiques. London: Falmer.

Murphy R., & Torrance, H. (Ed.) (1988). The changing face of educational assessment. Milton Keynes, England: Open University Press.

National Center on Education and the Economy (1989). To secure our future: The federal role in education. Rochester, NY: Author.

National Commission on Excellence in Education (1983). A nation at risk: The imperative for educational reform. Washington DC: US Government Printing Office.

National Commission on Testing and Public Policy (1990). From gatekeeper to gateway: transforming testing in America. Chestnut Hill, MA: National Commission on Testing and Public Policy, Boston College.

Noah, H.J., & Eckstein, M.A. (1990). Trade-offs in examination policies: An international comparative perspective. In P. Broadfoot, R. Murphy, & H. Torrance (Eds.), Changing educational assessment: International perspectives and trends. London: Routledge.

Nuttall, D.L., Backhouse, J.K., & Willmott, A.S. (1974) Comparability of standards between subjects. London: Evans/Methuen Educational.

Nuttall, D.L., & Willmott, S. (1972). British examinations Techniques of analysis. Windsor, England: NFER.

O'Neill, J. (1991). Drive for national standards picking up steam. Educational Leadership, 48(5), 4-9.

OECD (1982). Reviews of national policies for education: Greece. Paris: OECD.

OECD (1985). Reviews of national policies for education: Educational reforms in Italy. Paris: OECD.

OECD (1986). Reviews of national policies for education: Spain. Paris: OECD.

OECD (1990). Education in OECD countries 1987-88. Paris: Author.

Olson, L. (1991, January 23). Advisory panel presents national-test plan to Bush. Education Week, 25.

Orr, L. & Nuttall, D.L. (1983). Determining standards in the proposed single system of examining at 16+. London: Schools Council

Prost, A. (1968). Histoire de l'enseignement en France 1800-1967. Paris: Colin.

Public Law 100-297 (1988). Augustus F. Hawkins-Robert T. Stafford Elementary and Secondary School Improvement Amendments of 1988. Public Law 100-297. 102 Stat. 130.

Quality Education for Minorities Project (1990). Education that works: An action plan for the education of minorities. Cambridge, MA: MIT Press.

Rafferty, M. (1985). Examinations in literature. Perceptions from non technical writers of England and Ireland from 1850 to 1984. Unpublished doctoral dissertation. Boston College.

Raven, J. (1977). Education, values and society: The objectives of education and the nature and development of competence. London: Lewis.

Report on Education Research (1991, March 20) Principals give a thumbs down to a national test. Alexandria, VA; Capitol Publications, Inc.

Resnick, D.P. & Resnick, L.B. (1982). Standards, curriculum, and performance: A historical and comparative perspective: A report to the National Commission on Excellence in Education, 1982. Eric Document Reproduction Service No. ED 277 104.

Reynolds, D. (1988). Better schools? Present and potential policies about the goals, organization, and management of secondary schools. In A. Hargreaves, & D. Reynolds, (Eds.), Educational policy: Controversies and critiques. London: Falmer.

Roach, J. (1971). Public examinations in England 1850-1900. Cambridge: University Press.

Rosenholtz, S.J. (1987). Education reform strategies: Will they increase teacher competence? Canadian Journal of Education, 95, 534-562.

Rotberg, I.C. (1990). I never promised you first place. Phi Delta Kappan, 72, 296-300.

Rothman, R. (1990). 2 groups laying plans to develop national exams. Education Week, 1 & 14.

Rothman, R. (1991a, February 6). Group unveils plan for national test for all high-school seniors. Education Week, 5.

Rothman, R. (1991b, January 30). Promise, pitfalls seen in creating national exams. Education Week, 1 & 17.

Saylor, G. (1970). National assessment: Pro and con. The Record, 71(4), 588-597.

Schumacher, E.F. (1977). A guide for the perplexed. London: Abacus.

Scrimshaw, P. (1987). Towards a conservative curriculum. In T. Horton, (Ed.), GCSE: Examining the new system. London: Harper & Row.

Shanker, A. (1990). Perestroika for the classroom. New Perspectives Quarterly, 7(4), 20-22.

Shanker, A. (1991, February 24). An American revolution in education: Developing a common curriculum. New York Times, E-7.

Shepard, L.A. (1989). Inflated test score gains: Is it old norms or teaching to the test. Paper presented at Symposium on 'Cannell revisited: Accountability, test score gains, normative comparisions and achievement.' AERA, 1989, San Francisco.

Shepard, L.A., & Smith, M.L. (1986). Synthesis of research on school readiness and kindergarten retention. Educational Leadership, 44(3), 78-86.

Shepard, L.A., & Smith, M.L. (1989). Escalating academic demand in kindergarten: Counterproductive policies. Elementary School Journal, 89, 135-146.

Smith, M.L., & Shepard, L.A. (1988). Kindergarten readiness and retention: A qualitative study of teachers' beliefs and practices. American Educational Research Journal, 25, 307-333.

Smith, M.S., O'Day, J., & Cohen, D.K. (1990). National curriculum, American style: Can it be done? What might it look like? American Educator, (Winter), 10-17, 40-47.

Solberg, W. (1979). School leaving examinations. Why or why not? In F.M. Ottobre (Ed.), Criteria for awarding school leaving certificates. Oxford: Pergamon.

Solberg, W., & Meijering, P.H. (1979). School leaving examinations in the Netherlands. In F.M. Ottobre (Ed.), Criteria for awarding school leaving certificates. Oxford: Pergamon.

Spaulding, F.T. (1938). High school and life: The Regents inquiry into the character and cost of public education. New York: McGraw Hill.

Srinivasan, J.T. (1971). Annual terminal examination in the Jesuit high schools of Madras, India. Unpublished doctoral dissertation, Boston College.

Stake, R.E., McTaggart, R., & Munski, M. (1985). An Illinois pair: A case study of school art in Champaign and Decatur. Urbana IL: CIRCE, University of Illinois.

Staudenmaier, J.M. (1985). Technology's storytellers: Reweaving the human fabric. Cambridge, MA: MIT Press.

Stodolsky, S.S. (1988). The subject matters: Classroom activity in math and social studies. Chicago: University of Chicago Press.

Stichting Research voor Beleid (1988). The conditions of service of teachers within the member states of the European Community. Leiden: Author.

Stufflebeam, D, Jaeger, R. and Scriven, M. (1990) Second interim assessment of NAGB's process of setting achievement levels on the 1990. National Assessment of Educational Progress in mathematics. Kalamazoo, MI; The Evaluation Center, Western Michigan University

Task Force on Education of Young Adolescents (1989). Turning points: Preparing American youth for the 21st century. New York: Carnegie Corporation of New York.

Tinkelman, S.N. (1966). Regents examinations in New York State after 100 years. In Proceedings of the 1965 unvitational conference on testing problems. Princeton, NJ: Educational Testing Service.

Toch, T. (1990, December 31). Educators embrace national exam. US News and World Report, 56.

Toch, T. (1991, February 18). Going back to school. US News and World Report, 55-56.

Turner, G. (1984). Assessment in the comprehensive school: What criteria count? In P. Broadfoot, (Ed.), Selection, certification, and control. New York: Falmer.

Tyler, R.W. (1963). The impact of external testing programs. In W.G. Findley, (Ed.), The impact and improvement of school testing programs. Sixty-second Yearbook of the National Society for the Study of Education. Chicago: NSSE.

Tyler, R.W. (1965). Assessing the progress of education. Phi Delta Kappan, 47, 13-16.

Visalberghi, A. (1985). Italy: System of education. In T. Husen & T.N. Postlethwaite (Eds.), The international encyclopedia of education. Oxford: Pergamon.

Wake, R.A., Marbeau, V., & Peterson, A.D.C. (1979). Innovation in secondary education in Europe. Strasbourg: Council of Europe.

Wheelock, A., & Dorman, G. (1989). Before it's too late: Dropout prevention in the middle grades. Boston, MA: Massachusetts Advocacy Center.

White, E.E. (1888). Examinations and promotions. Education, 8, 519-522.

Winner, L. (1977). Autonomous technology: Technic-out-of-control as a theme in political thought. Cambridge, MA: MIT Press.

Winner, L. (1986). The whale and the reactor: A search for limits in an age of high technology. Chicago: University of Chicago Press.

Wise, A.E. (1979). Legislated learning: The bureaucratization of the American classroom. Berkeley, CA: University of California Press.

Witte, G.B. (1986). Curriculum research in Spain. In U. Hameyer et al (Eds.), Curriculum research in Europe. Lisse: Swets & Zeitlinger.

Xochellis, P., & Terzis, N. (1986). Curriculum research in Greece. In U. Hameyer et al (Eds.), Curriculum research in Europe. Lisse: Swets & Zeitlinger.

TABLES

TABLE 1

MINIMUM NUMBER OF SCHOOL DAYS IN EC COUNTRIES

Belgium	182
Denmark	200
Germany (North Rhine-Westphasia only)	240
Greece	175
Ireland	180
Italy	215
Luxembourg	180
Netherlands	200
Portugal	
Spain	
United Kingdom	

Source: Stichting Research voor Beleid (1988)

Table 2
Total Grade School Population for EC Countries & US

	1985 [1] Total Population	1984 [2] 6-15 1st & Lower Sec.	1984 [2] 6-11 Primary	1984 [2] 12-15 Lower, Sec.	1984 [2] 16-19 Upper Sec.	1988 [3] Comparable Total Pop in USA
Belgium	9,858,000	1,288,500	732,600	555,900	--	MI 9,240,000
Denmark	5,114,000	696,300	404,400	291,900	327,200	MO 5,141,000
France	55,170,000	8,039,300	4,578,000	3,461,300	3,426,000	CA 28,314,000 NY 17,909,000 OH 10,855,000
Germany	61,024,000	6,684,000	3,505,000	3,179,000	4,115,000	CA & NY & OH & MO
Greece	9,935,000	1,435,400	838,500	596,900	618,300	OH 10,855,000
Ireland	3,540,000	693,400	417,500	275,900	257,300	SC 3,470,000
Italy	57,141,000	8,388,000	4,773,000	3,615,000	3,806,000	CA & NY & OH
Luxembourg	367,000	42,800	24,100	18,700	21,400	WY 479,000
Netherlands	14,492,000	2,053,200	1,103,300	949,900	981,200	TX 16,841,000
Portugal	10,157,000	1,702,800	1,011,300	691,500	--	OH
Spain	38,602,000	6,511,200	3,883,800	2,627,400	2,660,400	CA & OH
U.K.	56,618,000	7,506,900	4,110,000	3,355,900	3,709,700	CA & NY & OH
USA	239,300,500	34,191,500	19,682,500	14,509,000	14,979,000	

1 = European Community Figures
2= OECD (1990) Education in OECD Counties Paris: Author
3= World Almanc & Book Facts New York: Pharos Books
Hoffman M.S. (Ed) (1987) 1987-88.

TABLE 3

DATA ON AGE OF COMPULSORY-SCHOOL ATTENDANCE AND STRUCTURE OF THE EDUCATIONAL SYSTEMS IN THE EUROPEAN COMMUNITY

	Compulsory Age Attendance	Horizontal Structure of System	Comprehensive curriculum/schools lower secondary Grades[1]	Differentiated curriculum/sch... Grades
BELGIUM[2, 3]	6-16 (16-18 P-T)	6-3-3 or 6-2-2-2	7-10*	11-12
DENMARK	7-16	7-3-2 or 7-2-3	8-10	11-12
FRANCE	6-16	5-4-3	6-9	10-12
GERMANY[3]	6-15	4-6-3	5-6*	5-13
GREECE	6-15	6-3-3	7-9	10-12
IRELAND[2]	6-15	6-3-2/3	7-9*	7-12
ITALY	6-14	5-3-5	6-8	9-13
LUXEMBOURG	5-15	6-7		7-13
NETHERLANDS	6-16	6-3-3	7-10*	7-12
PORTUGAL	6-12	4-2-3-2-1	5-9	10-12
SPAIN	6-15	5-3-3(-1)	6-8	9-13
UNITED KINGDOM	5-16	6-4-2	7-10	11-12

1 A number of countries are less advanced than others in comprehensivization of their school structures. These countries are marked with an asterisk.

2 Belgium and Ireland have an additional two years pre-primary education integrated into the primary-school system. All other countries have provision outside the formal educational system for early childhood educatio...

3 Belgium and Germany are federations. There are two states in Belgium with completely independent educati... systems. There are eleven states in the former Federal Republic of Germany (16 in the new Germany). Each of ... eleven states determines its curriculum under terms agreed by the Council of State Ministers of Education.

TABLE 4

PERCENTAGES OF UPPER-SECONDARY STUDENTS IN GENERAL EDUCATION AND IN TECHNICAL/VOCATIONAL EDUCATION, BY GENDER, 1985/86

	PERCENTAGE GIRLS		PERCENTAGE BOYS	
	GENERAL EDUCATION	TECHNICAL/ VOCATIONAL EDUCATION	GENERAL EDUCATION	TECHNICAL/ VOCATIONAL EDUCATION
BELGIUM [1]	56	44	53	47
DENMARK	40	60	26	74
FRANCE [2]	65 [3]	35	58 [3]	42
GERMANY [2]	51	49	57	43
GREECE	83	17	62	38
IRELAND	79	21	86	14
ITALY [4]	26	74 [5]	22	78 [5]
LUXEMBOURG	38	62	29	71
NETHERLANDS	49	51	43	57
PORTUGAL [6]	99	1	99.8	0.2
SPAIN	58	42	53	47
UNITED KINGDOM	53	47	57	43

1 Lower and upper-secondary education
2 1986/87
3 Includes upper-secondary technological education
4 1984/85
5 Includes preschool and primary teacher training
6 Technical/vocational education was abolished in 1976. New courses were introduced on an experimental basis in 1983/84.

Source: European Communities Commission (1990), Table 3b.

TABLE 5

ENROLMENT RATES FOR AGES 15-18
IN THE EUROPEAN COMMUNITY, CANADA, JAPAN, AND U.S.A.

1987-88

	Age 15	Age 16	Age 17	Age 18
Belgium	95.8	95.5	92.7	72.0
of whom, part-time	2.2	3.6	4.6	4.6
Denmark	97.4	90.4	76.9	68.6
France	95.4	88.2	79.3	63.1
of whom, part-time	0.3	7.9	10.0	5.2
Germany [1]	100.0	94.8	81.7	67.8
of whom, part-time			0.1	
Greece [2]	82.1	76.2	55.2	43.6
Ireland [2]	95.5	83.9	66.4	39.6
Italy				
Luxembourg [3]			83.4	71.1
of whom, part-time			15.8	15.8
Netherlands [4]	98.5	93.4	79.2	59.7
of whom, part-time				
Portugal		32.1	36.9	29.2
Spain	84.2	64.7	55.9	30.4
U.K.	99.7	69.3	52.1	33.1
Canada	98.3	92.4	75.7	56.9
Japan [3]	96.6	91.7	89.3	3.2
of whom, part-time	2.6	1.9	1.7	1.4
U.S.A. [2]	98.2	94.6	89.0	60.4

1 Apprenticeship is classified as full-time education
2 1986-87
3 Excluding third-level
4 Excludes second-level part-time education

Source: OECD (1990), Table 4.2, except figures for Portugal which are for secondary education in 1983-84 and c
European Communities Commission (1990), Table 1c.

TABLE 6

EXAMINATIONS/CERTIFICATES IN EC COUNTRIES

	Primary	End of Compulsory	End of Secondary	Entrance to 3rd level
BELGIUM	Diploma Optional Kantonal school-based exams	Series of diplomas (general, technical) (school-based)	Diplomas for general, technical, professional studies (School-based)	Some univer departments (engineeri requires ad test
DENMARK	None	Leaving Certificate set by MOE, marked by own teacher & external teacher.	Atrium set by MOE and marked by own teacher & external teacher. Vocational/ technical alternatives.	
FRANCE	None	Brevet de college exam set and marked by 23 academies in basic subjects & teachers' assessment in other curricular areas.	Baccalaureat set and marked by 23 academies (questions selected from centrally approved list). Three types: general, technical and vocational.	MOE Concours for admis grand ecol one two yea lower status universities sufficient.
GERMANY	None	Series of examinations/diplom as depending on type of school attended set by 11 state MOEs and marked by own teacher.	Abitur set by 11 state MOEs and marked by own teacher. Some weight to school grades	
GREECE	None	Diploma (school-based).	School-leaving diploma (school-based)	Exam set a marked by school-leav diploma
IRELAND	None	Two external exams set and marked by MOE; some school assessment in some subjects. (To be amalgamated into one Junior Certificate in 1992).	Leaving Certificate set and marked by MOE	
ITALY	Primary Certificate under direction of MOE. Set and marked in school	Middle-school certificate and technical/ vocational qualifications. Set by MOE, marked in own school.	Exam/Diploma of General Education; Diploma of Technical Education. Set by MOE. Marked by local exam committees (including teachers form candidates' school).	Some univ departmen require ad exam, but not.

Table 6 (Cont.)

	Primary	End of Compulsory	End of Secondary	Entrance to 3rd level
LUXEMBOURG	None	School Cert of completion	Diploma de fin d'etudes Secondaires set by MOE, marked by school and outside examiners (written)	
NETHERLANDS	None	Exam/certificate based on internal assessment and national (MOE) written exam.	Exam certificate based on internal assessment and national (MOE) written exam.	
PORTUGAL	None	School cert (based on assessment by teachers).	School cert (based on assessment by teachers).	Exam set a scored by M
SPAIN	None	School cert (based on assessment by teachers).	Bacillerato Unificado Polivant. School cert (based on assessment by teachers).	One year la exam set an by MOE (ac exams set f some unive departmen
UK	None	GCSE set and marked by 5 regional boards. Incorporates some school - based assessment	General Certificate of Education, set and marked by 8 Examination Boards.	

TABLE 7

EXAMPLES OF QUESTIONS FROM THE IRISH LEAVING CERTIFICATE EXAMINATION

History (Ordinary):

Why had the Renaissance movement little direct influence in Ireland?

What was the Spanish attitude to slavery in the colonies?

Write a short paragraph on two of the following: Burgundy under Charles the Bold, The Conquest of Granada, Savonarola, The Diet of Worms, 1521 Martin Luther's writings, The Results of the Council of Trent.

History (Higher):

Write an essay on housing and farming in Ireland Tudor times.

Why is the reign of Elizabeth I generally regarded as of the most important periods of English history?

English (Ordinary):

Write a composition on one of the following subjects:

(a) Why I would like to be someone else.

(b) A recent magazine article ended as follows: "So there is no need to fear for Ireland's future, now that we have joined the Common Market." Give your views of this conclusion.

(c) A hero of our times.

(d) You have seen a filmed verison of a novel (or short story, or drama) that you know. Describe how the film version has affected your enjoyment of this novel (or short story, or drama).

English (Higher):

Write a composition on one of the following subjec

(a) The tyranny of convention.

(b) "The thoughts of youth are long, long thoughts".

(c) Write an article for a serious newspaper or magazine giving your comments on the "permissive society" and on those who have allowed it to develop.

(d) Modern society is being ruined by urbanisation.

Mathematics (Ordinary):

Differentiate with respect to x:

(i) $(x^3 - 3)(x^2 - x - 4)$

(ii) $\frac{4x+1}{x^2+x+2}$

Mathematics (Higher):

Prove De Moivre's Theorem.

if $Z = \cos\theta + i \sin\theta$, prove

$x^n + Z^{-n} = 2 \cos n\ \theta$

and find $\sin n\ \theta$ in terms of Z

Prove also that

$(\sin x + i \cos x)^n = \cos n\ (\pi/2 - x) + i \sin n\ (\pi/2 - x)$
when n is a positive integer.